

Fig. 1

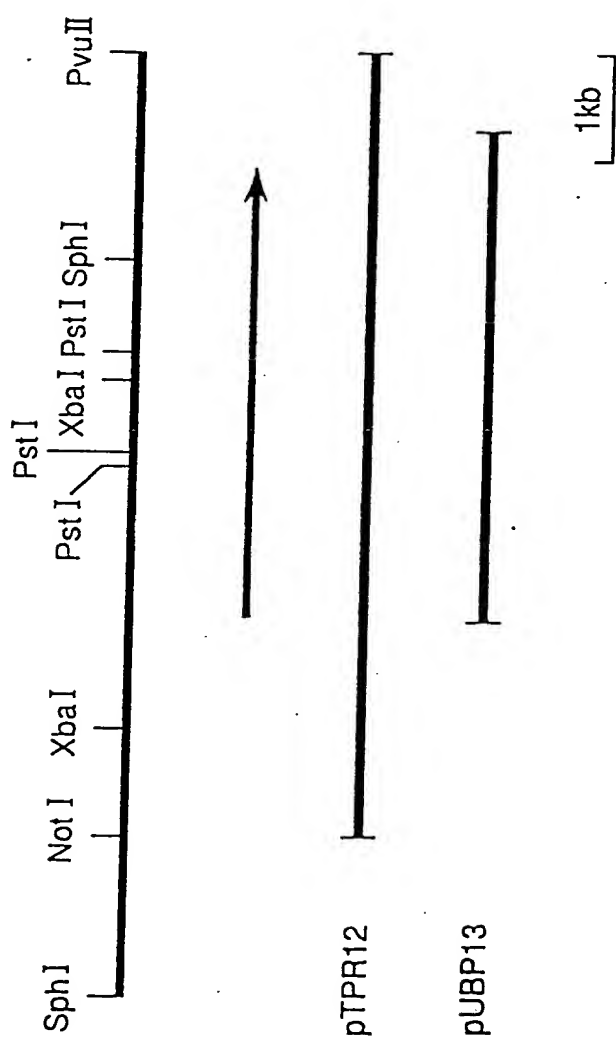


Fig. 2

170 175 180
Asp Gly Ser Gly Val Val Val Ala Val Leu Asp Thr Gly Val
5'-GAT GGT ACT GGT GTT GTT GTT GCA GTA CTT GAC ACG GGA GTT-3'

PRO-1F 5'-GGW WSD RRT GTT RRH GTH GCD GTD MTY GAC ACB GG-3'

Fig. 3

365 370 375
His Gly His Gly Thr His Val Ala Gly Thr Val Ala Gly Tyr
5'-CAC GGT CAC GGA ACT CAC GTA GCT GGA ACT GTT GCT GGT TAC-3'

PRO-2F 5'-KST CAC GGA ACT CAC GTD GCB GGH ACD GTT GC-3'

PRO-2R 3'-GTG CCT TGA GTG CAH CGV CCK TGH CAA CGM CSA-5'

Fig. 4

590 595
Ser Gly Thr Ser Met Ala Thr Pro His Val Ser Gly Val Val
5'-TCT GGA ACT TCG ATG GCT ACT CCA CAT GTC AGC GGT GTC GTT-3'

PRO-4R 3'-CCD TGV AGB TAC CGD WGA GGB GTR CAV YSG CCH C-5'

Fig. 5

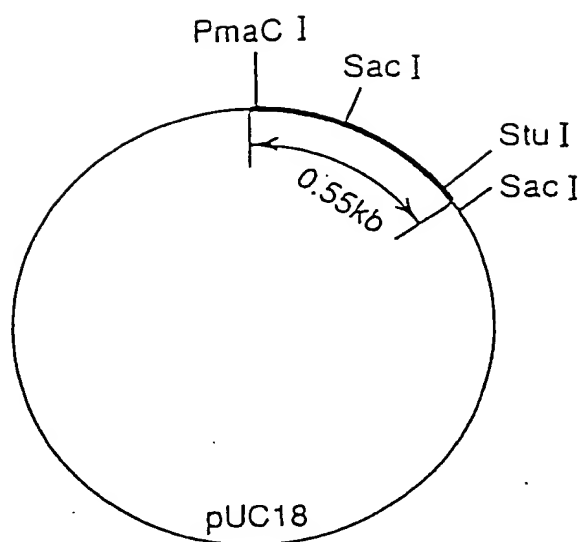


Fig. 6

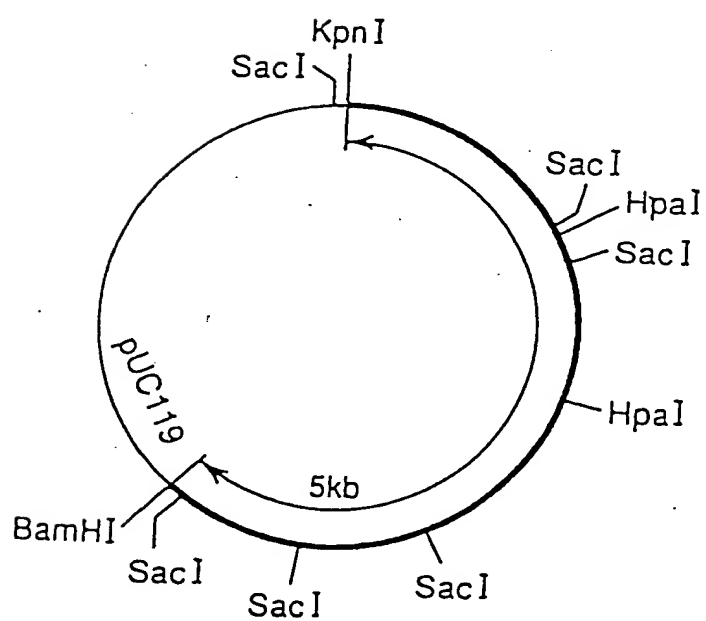


Fig. 7

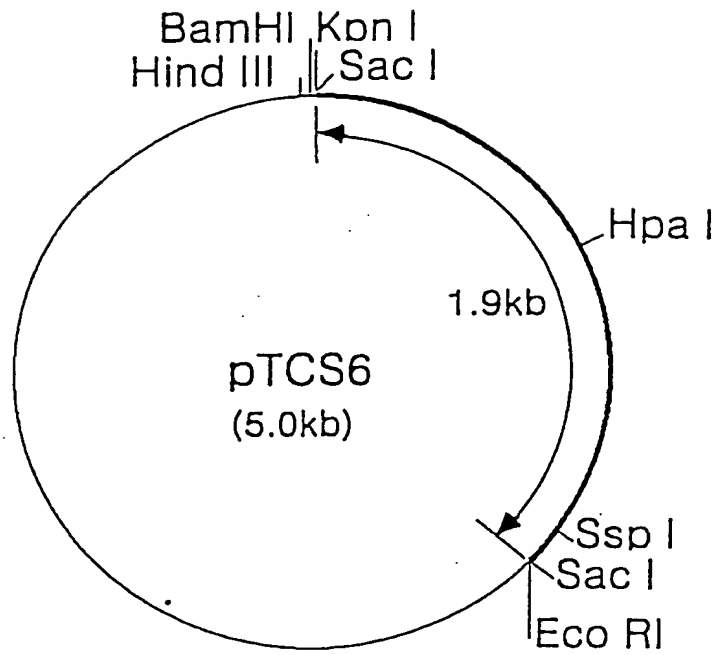
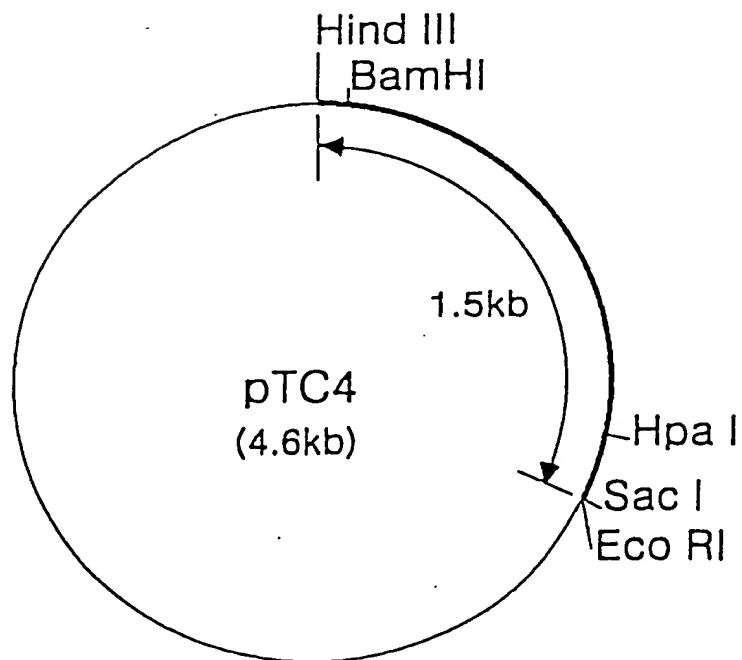


Fig. 8



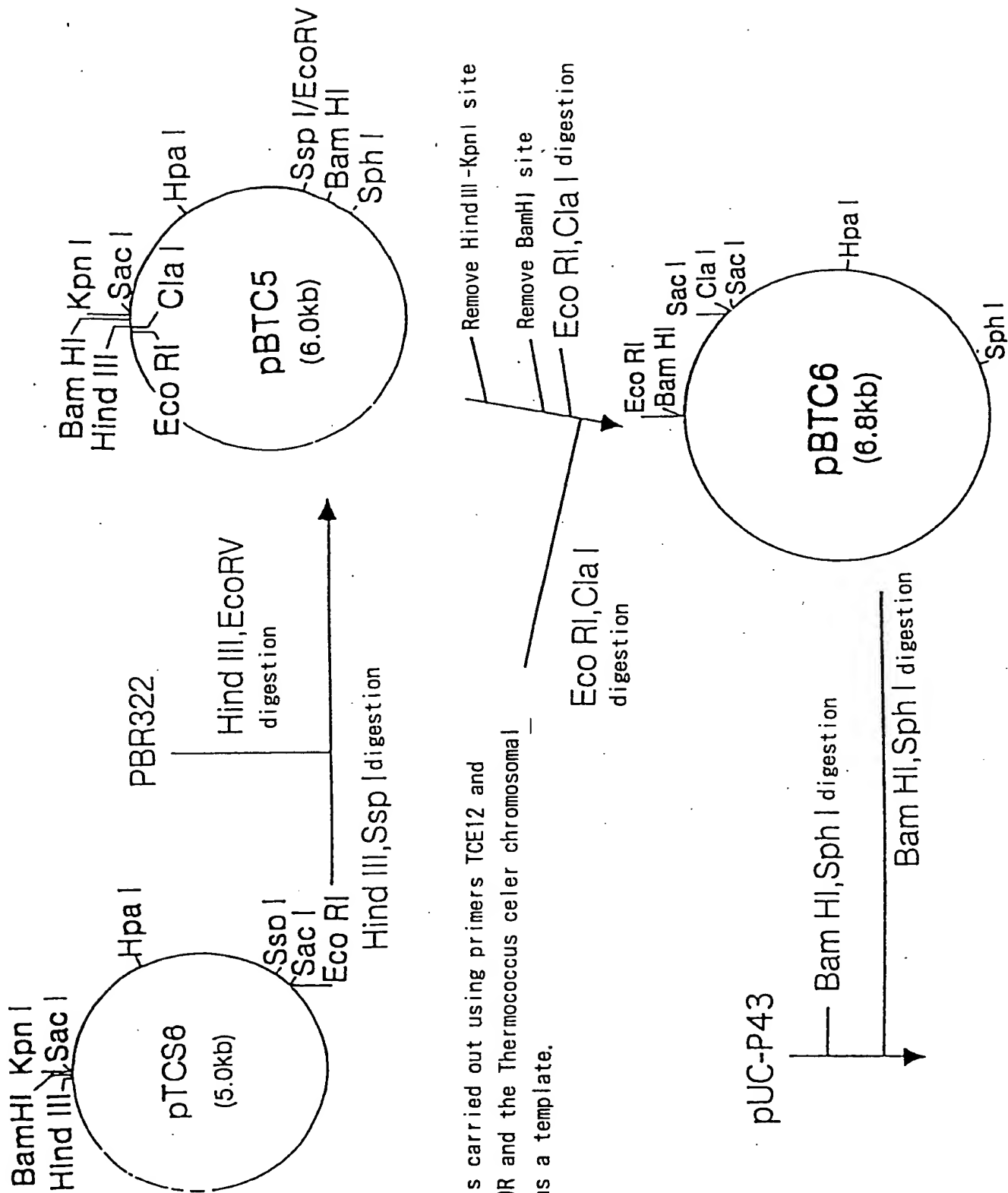


Fig. 9(Cont'd)

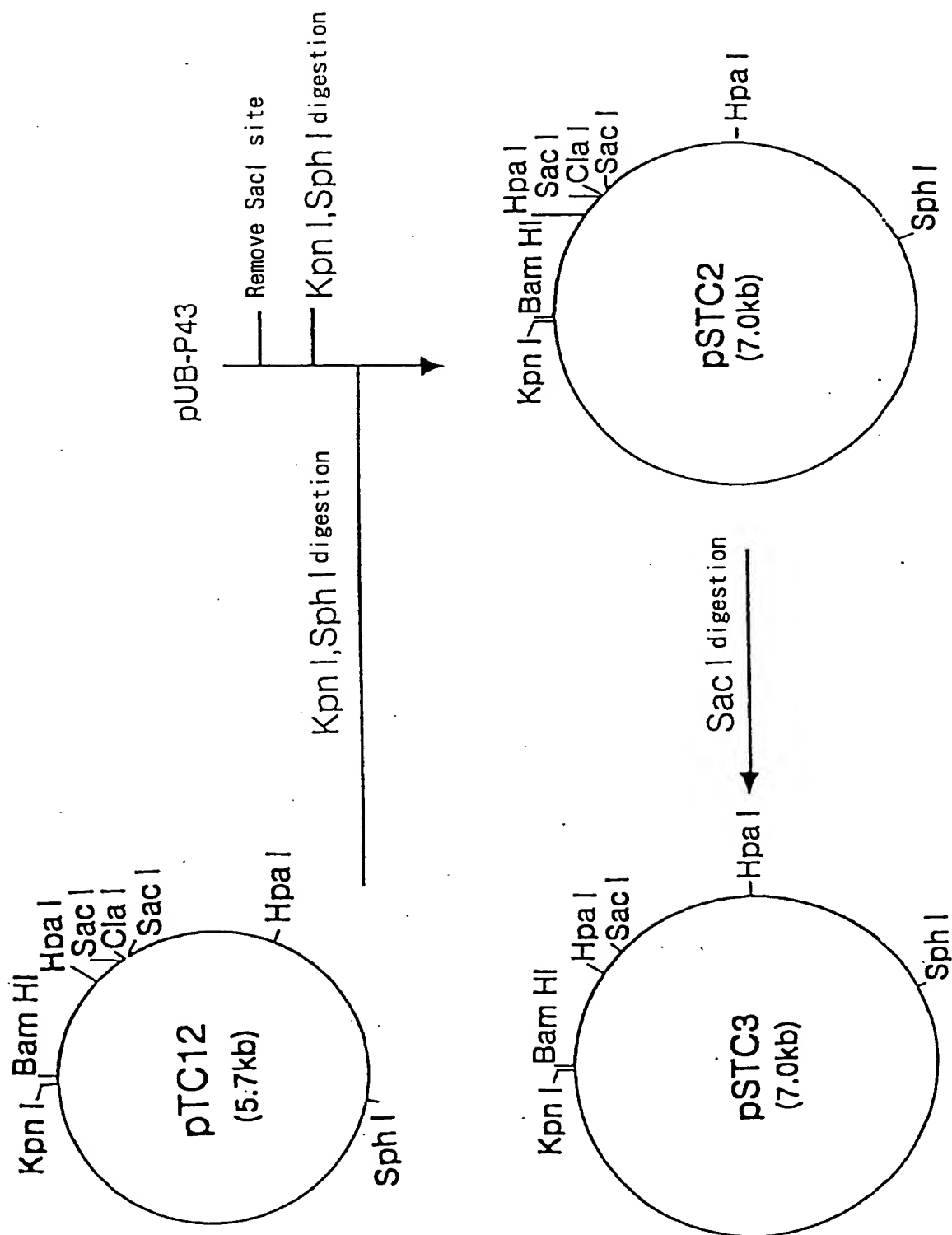
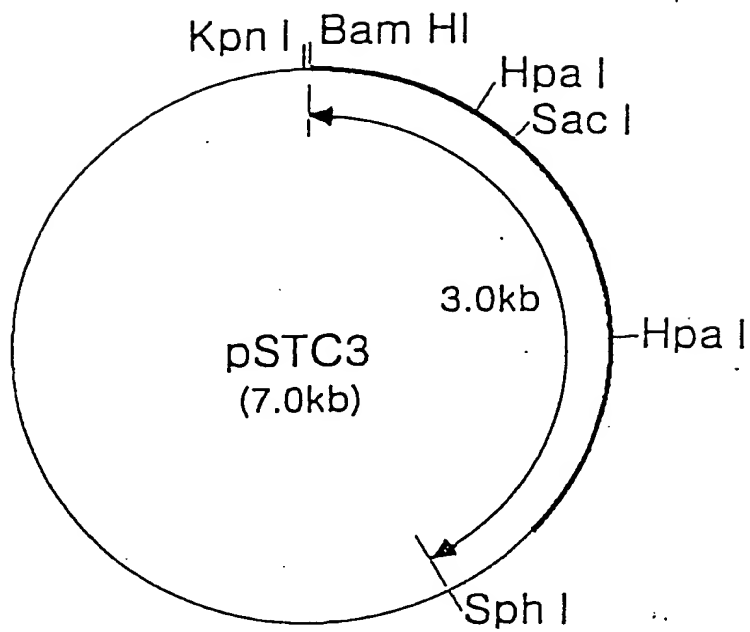


Fig. 10



THE "ESTHER"

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PFUL	10	20	30	40	50
TCES	MNKKGLTVLF	IAIMLLSVVP	VHFVSAETPP	VSENSTTSI	LPNQVVTK
SUBTILISIN		MKRLGAVV	LALVLVGLLA	GTALAAPVKP	VVRNNAVQK
					MRGKKVWISL

PFUL	60	70	80	90	100
TCES	VSQAALNAIM	KGQPNMVLII	KTEGKLEEA	KTELEKLGA	ILDENRVLNM
SUBTILISIN	NYGLLTPGLF	KKVQRMWNQ	EVDTVIMFGS	YGDRDRAVKV	LRLMGAQVKY
	LFALALIFTM	AFGSTSSAQ	AGKSNGEKKY	IVGFKQTMST	MSAAKKKQDVI

PFUL	110	120	130	140	150
TCES	LLVKIKPEKV	KELNYISSLE	KAWLNREVKL	SPPIVEKDVK	TKEPSLEPKM
SUBTILISIN	SYKIIIPAVAV	KIKARDLLLI	AGMIDTGYFG	NTRVSGIKFI	QEDYKVQVDD
	SEKGGKVQKQ	FKYVDAASAT	LNEKAVKELK	KDPSVAYVEE	DHVAHAYAQS

PFUL	160	170	180	190	200
TCES	YNSTWVINAL	QFIQEFGYDG	SGVVVAIVDT	GVDPNHPFLS	ITPDGRRKII
SUBTILISIN	ATSVSQIGAD	TVWNLSLGYDG	SGVVVAIVDT	GIDANHPDLK	GKVIWGYDAV
	VPYGVSQIKA	PALHSQGYTG	SNVKAIVIDS	GIDSSHPDLK	VAGGASMVPS

PFUL	210	220	230	240	250
TCES	EWKDFTEGEF	VDTSFSSFSKV	VNGTLIINTT	FQVASGLTLN	ESTGLMEYVV
SUBTILISIN	NGRSTPYDDQ	-----	-----	-----	-----
	ETNPFQDNN-	-----	-----	-----	-----

PFUL	260	270	280	290	300
TCES	KTVYVSNVTI	GNITSANGIY	HFGLLPERYF	DLNFDGDQED	FYPVLLVNST
SUBTILISIN	-----	-----	-----	-----	-----
	-----	-----	-----	-----	-----

PFUL	310	320	330	340	350
TCES	GNGYDIAYVD	TDLDYDFDTE	VPLGQYNVTY	DVAVFSYYYG	PLNYVLAIED
SUBTILISIN	-----	-----	-----	-----	-----
PFUL	360	370	380	390	400
TCES	PNGEYAVFGW	DGHGHGTHVA	GTVAGYDSNN	DAWDWLSMYS	GEWEVFSRLY
SUBTILISIN	-----	-----	-----	-----	-----
PFUL	410	420	430	440	450
TCES	GWDYTNVTTD	TVQGVAPCAQ	IMAIRVLRSD	GRGSMWDIE	GMTYAATHGA
SUBTILISIN	-----	-----	-----	-----	-----
PFUL	460	470	480	490	500
TCES	---DVISMS	LGGNAPYLDG	TDPEVAVDE	LTEKYGVVEV	IAAGNEGPFI
SUBTILISIN	---KYGIRVINLS	LGSSQSS-DG	TDLSQAANN	AWDA-GIVVC	VAAAGNCPNT
PFUL	510	520	530	540	550
TCES	---DVINMS	LGGP-----SC	SAALKAAYDK	AVAS-GVVV	AAAGNEGTSG
SUBTILISIN	---N--IVGSPGV	ATKALTVGAA	AVPINVGYYV	SQALGYPDYY	GFYFFPAYTN
PFUL	560	570	580	590	600
TCES	---TVGSPAA	ASKVITVGAV	DSNDN-----	-----	-----
SUBTILISIN	SSSTVGYPGK	YPSVIAVGAV	DSNQ-----	-----	-----
PFUL	VRIAEFSSRG	PRIDGEIKEN	VVAPGYGITYS	SLEPMWIGGAD	F-----MS
TCES	---IASFSSRG	PTADGRLKPE	VVAPGVDTIA	PRASGTSMGT	PINDYYTKAS
SUBTILISIN	---RASFSVGC	PELD-----	VMAPGVSTIQS	TLEGNKYGA-	-----YN

PFUL	610	620	630	640	650
TCES	GTSMATPHVS	GVVALLISGA	KAEGYYNPD	IICKVLESQA	TWLECDPYTG
SUBTILISIN	GTSMATPHVS	GVAALILQAH	PSWTDPDKVKT	----ALIEA	DIVAPKEIAD
	GTSMASPHVA	GAAALILSKH	PNNWNTQVRS	----SLENT	TKL-GDS---
PFUL	660	670	680	690	700
TCES	QKYTELDQGH	GLVNVTKSWE	ILKAINGTTL	PIVDHWADKS	YSDFAEYLG
SUBTILISIN	-----IAYGA	GRNVYKAIK	YDDYAKLTFT	GSVADKGSAT	HTFDVSGATF
	-----FYGK	GLINVQAAQ	*		
PFUL	710	720	730	740	750
TCES	DVIRGLYARN	SIPDIVEWHI	KYVGDTEYRT	FEIYATEPWI	KPFVSGSVIL
	VTATLYWDTG	SSDIDLPLYD	PNGNEVDYSY	TAYYGFKEVG	YYNPAGTWT
PFUL	760	770	780	790	800
TCES	ENNTEFVLRV	KYDVEGLEPG	LYVGRIIIDD	PTTPVIEDEI	LNTIVPEKF
	VKVVSXKGAA	NYQVDVVSDG	SLSQSGGPNP	NPNNPNPTP	TTDTQTFTGS
PFUL	810	820	830	840	850
TCES	TPENNYTLTW	YDINGPEMVT	HHFFTVPEGV	DVLYAMTTYW	DYGLYRPDGM
	VNDYWDTSST	FTMNVNSGAT	KITGDLTFTD	SYNDLDLYLY	DPNGNLVDRS
PFUL	860	870	880	890	900
TCES	FVFPYQLDYL	PAAVSNPMPG	NWELVWTGFN	FAPLYESGFL	VRIYVEITP
	TSSNSYEHVE	YANPAPGTWT	FLVYAYRTYG	WADYQLKAVV	YYG*
PFUL	910	920	930	940	950
	SVWYINRTYL	DTNTEFSIEF	NITNIYAPIN	ATLIPIGLGT	YNASVESVGD

Fig. 12 (Cont'd)

PFUL	960	970	980	990	1000
	GEFFIKGIEV	PEGTAELKIR	IGNPSVPNSD	LDLYLYDSKG	NLVALDGNPT
PFUL	1010	1020	1030	1040	1050
	AEEEEVVEYP	KPGVYSIVVH	GYSVRDENG	PTTTTFDLVV	QMTLDNGNIK
PFUL	1060	1070	1080	1090	1100
	LDKDSIILGS	NESVVVTANI	TIDRDHPTGV	YSGIIEIRDN	EVYQDTNTSI
PFUL	1110	1120	1130	1140	1150
	AKIPITLVID	KADFAVGLTP	AEGVLGEARN	YTLIVKHALT	LEPVPNATVI
PFUL	1160	1170	1180	1190	1200
	IGNYTYLTDE	NGTVTFTYAP	TKLGSDEITV	IVKKENFNTL	EKTFQITVSE
PFUL	1210	1220	1230	1240	1250
	PEITEEDINE	PKLAMSSPEA	NATIVSVEME	SEGGVKKTVT	VEITTINGAN
PFUL	1260	1270	1280	1290	1300
	ETATIVVPVP	KKAENIEVSG	DHVISYSIEE	GEYAKYVIIT	VKFASPVTVT
PFUL	1310	1320	1330	1340	1350
	VTYTYIYAGPR	VSILTINFLG	YSWYRLYSQK	FDELYQKALE	LGVDNETLAL
PFUL	1360	1370	1380	1390	1400
	ALSYHEKAKE	YYEKALELSE	GNIIQYLGDI	RLLPPLRQAY	INEMKAVKIL
PFUL	1410				
	EKAIEELEGE	E*			

Fig. 13

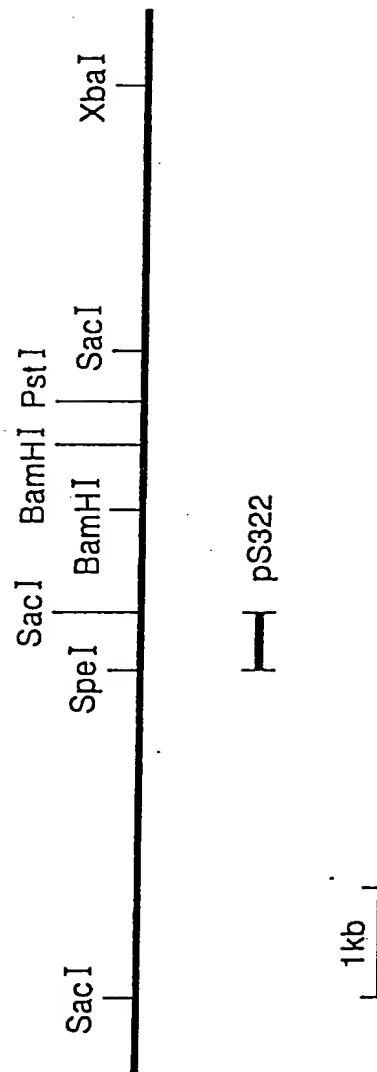


Fig. 14

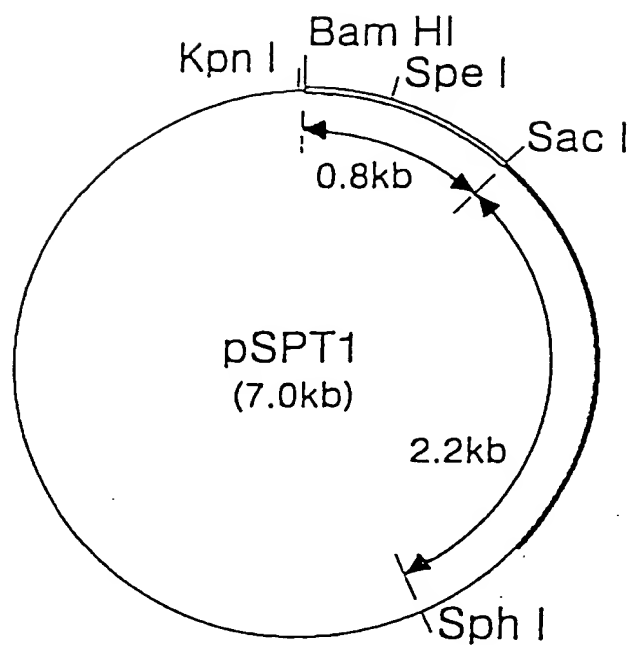


Fig. 15

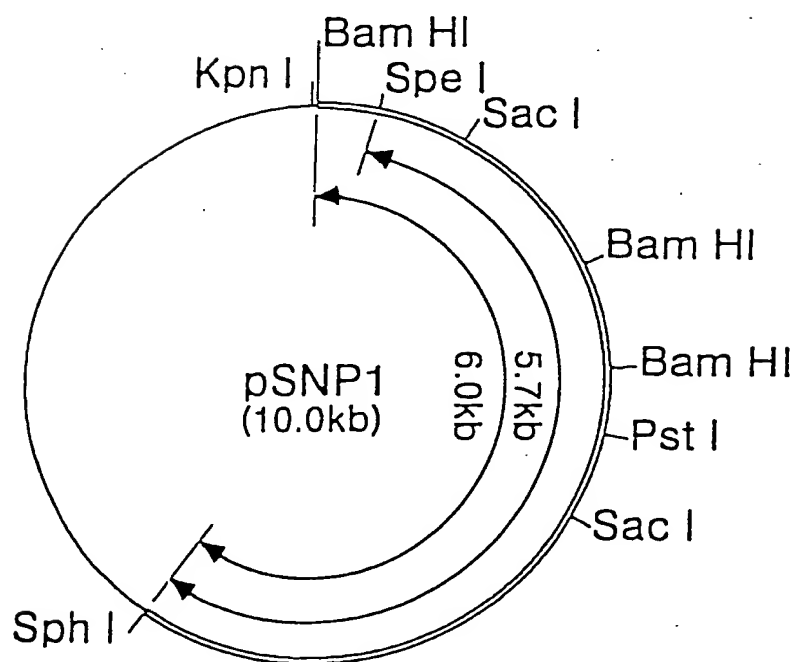


Fig. 16

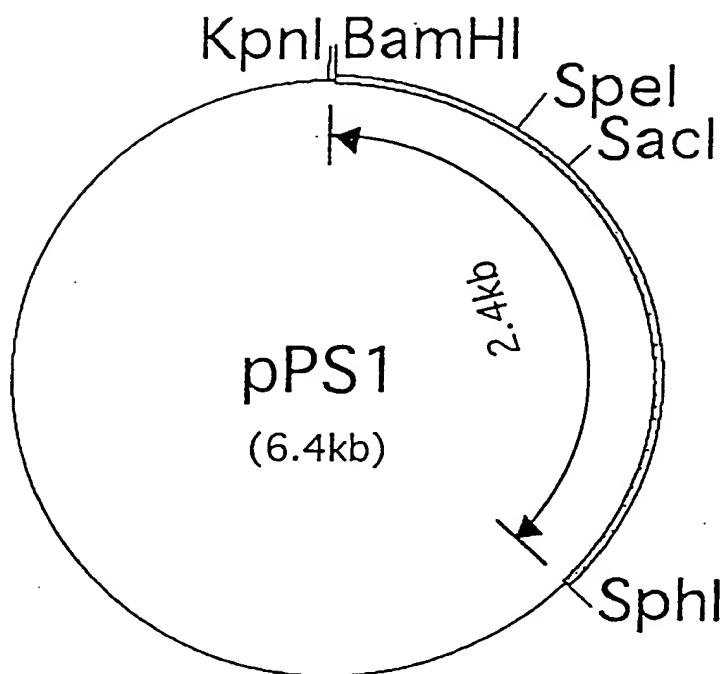


Fig. 17

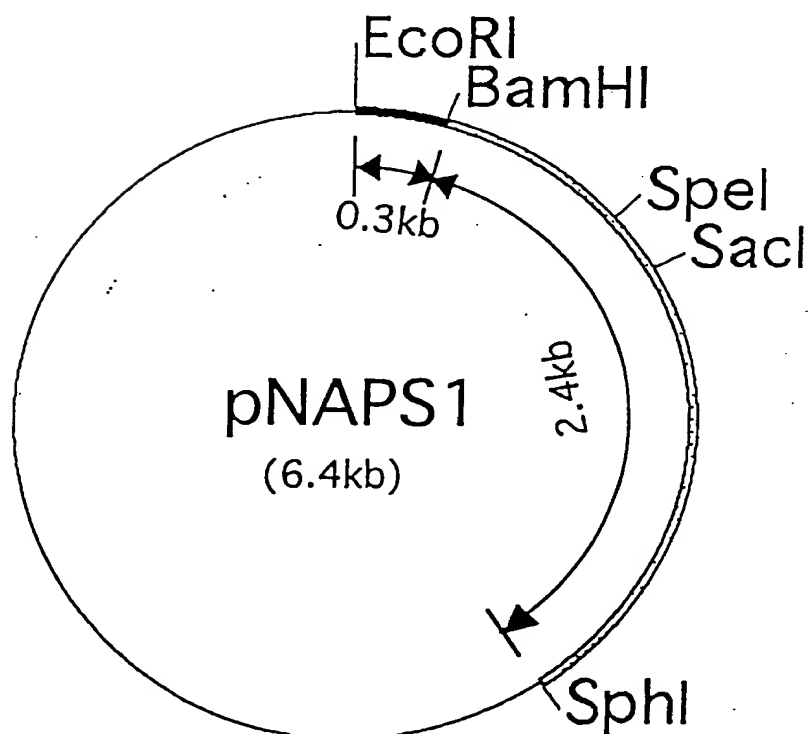


Fig. 18

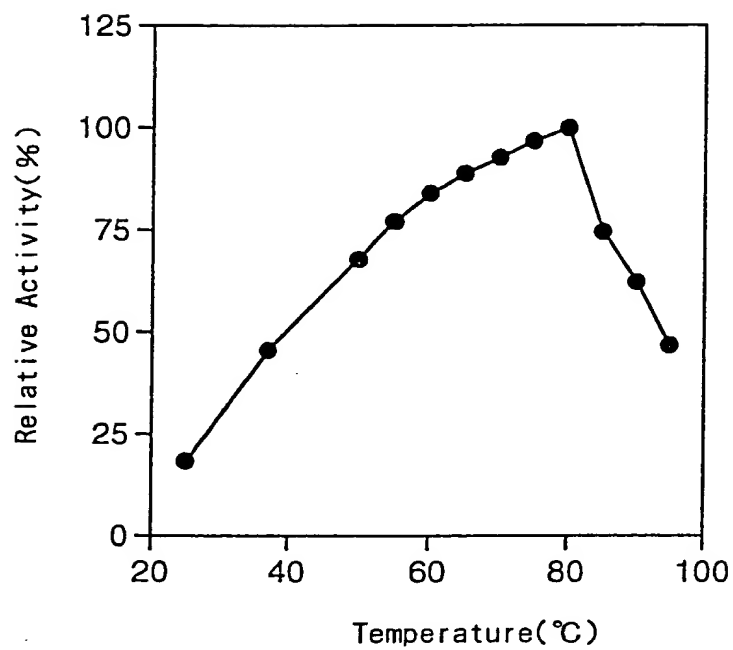


Fig. 19

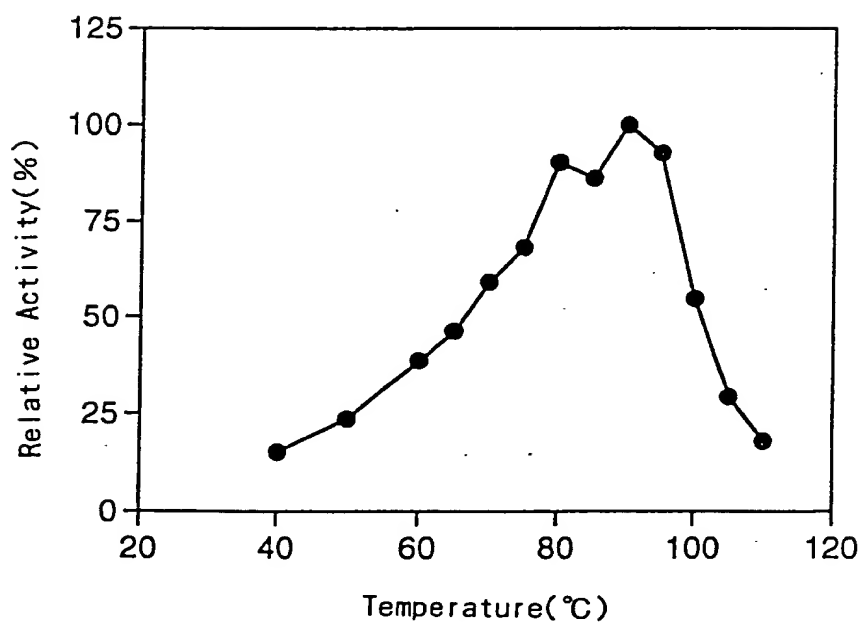


Fig. 20

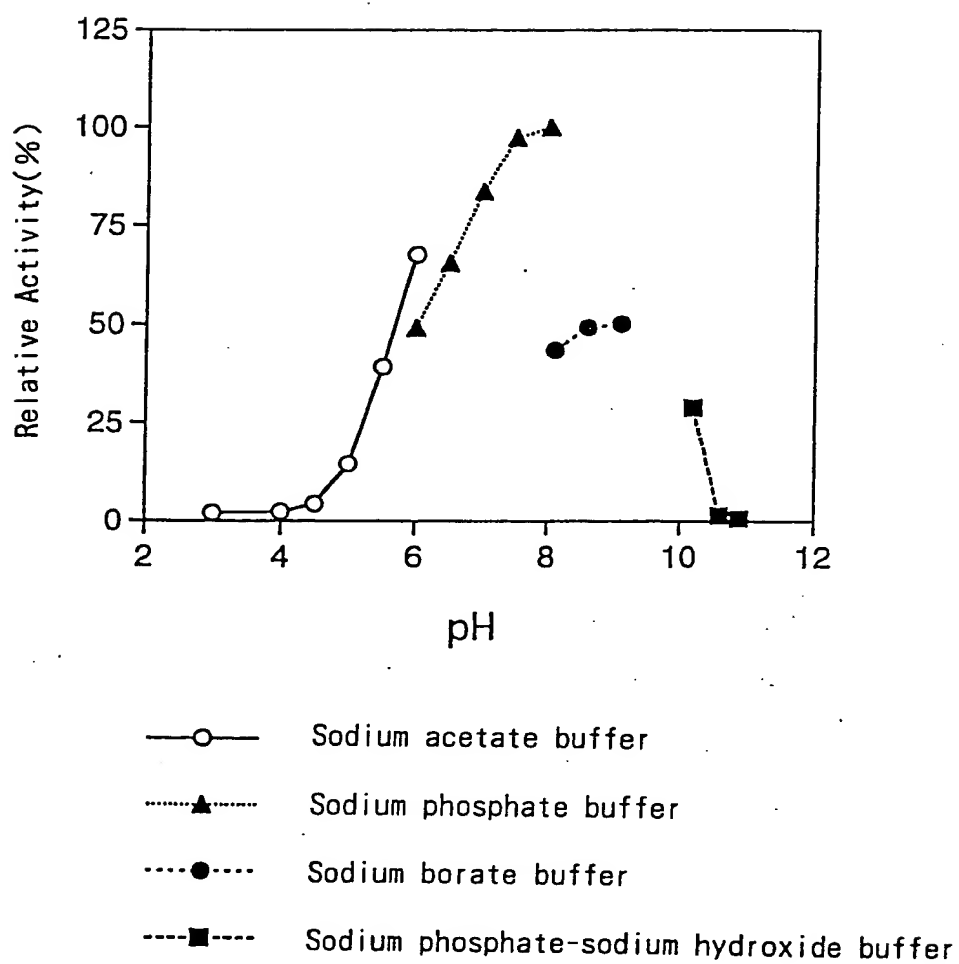


Fig. 21

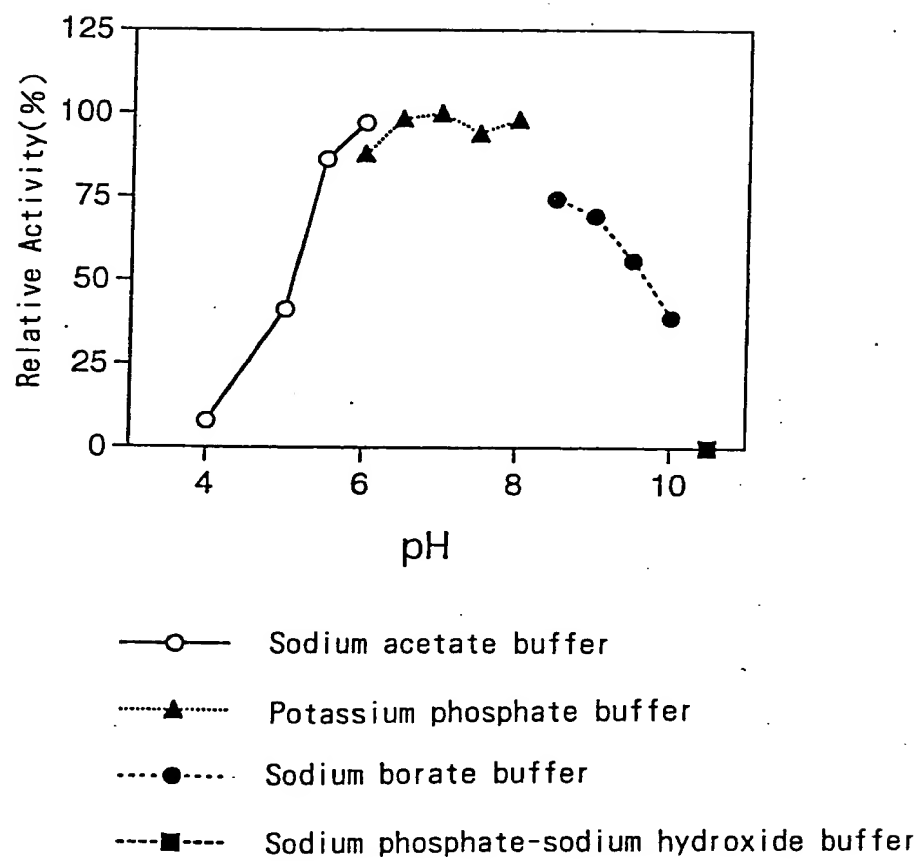


Fig. 22

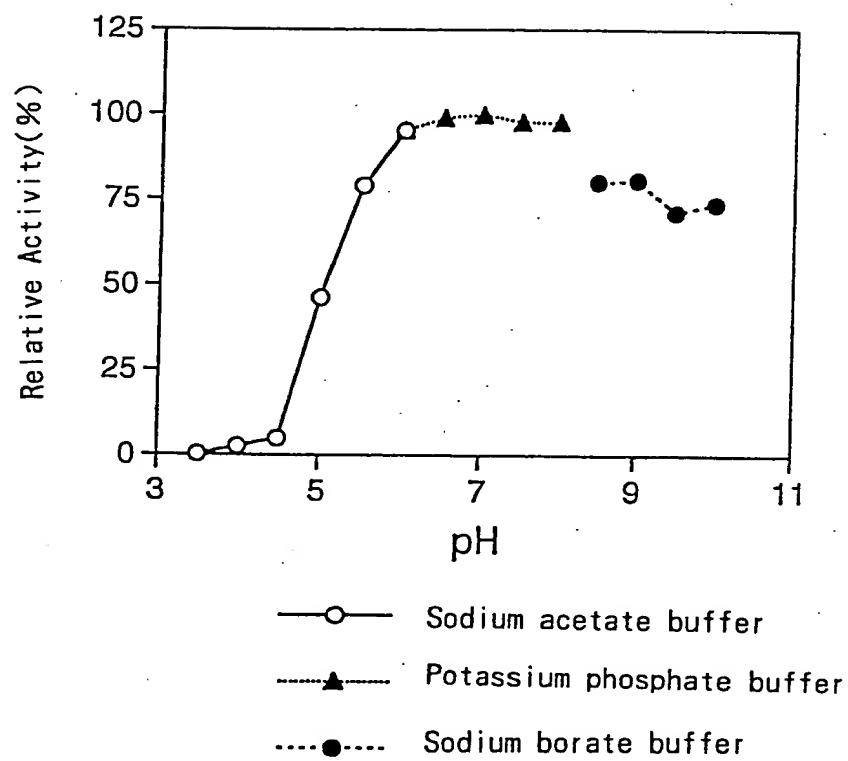


Fig. 23

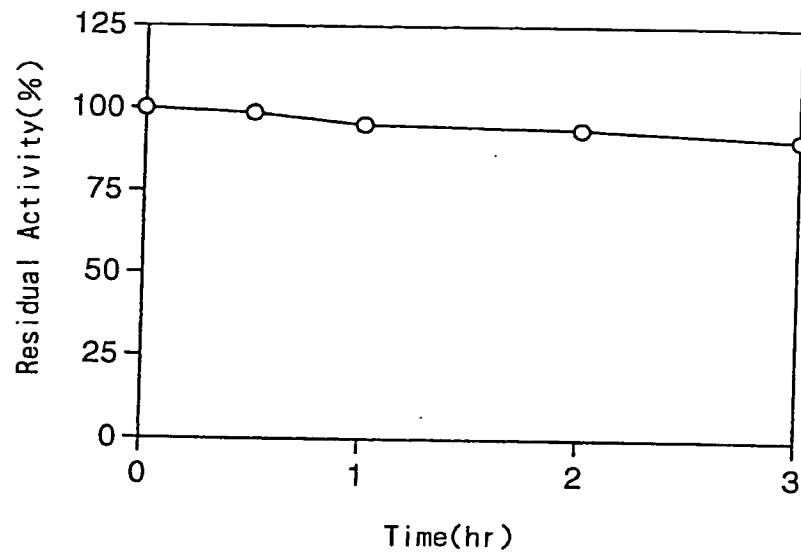


Fig. 24

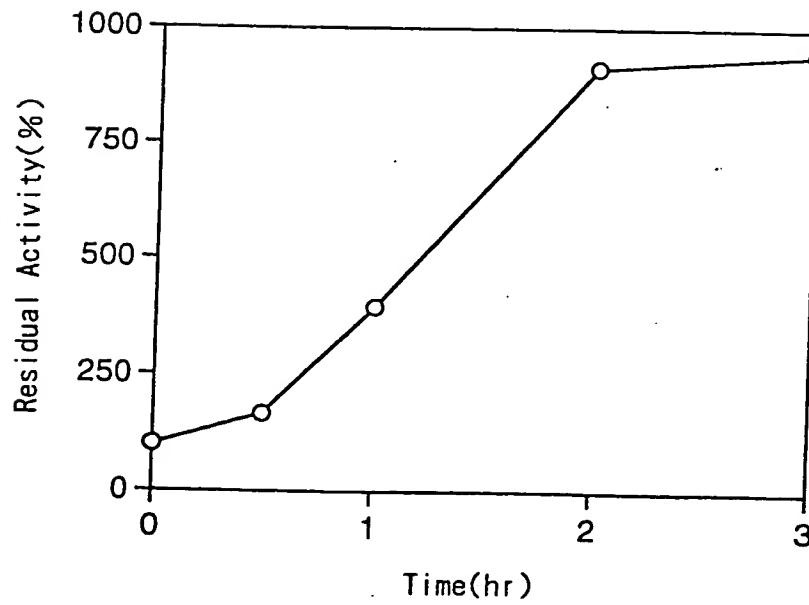


Fig. 25

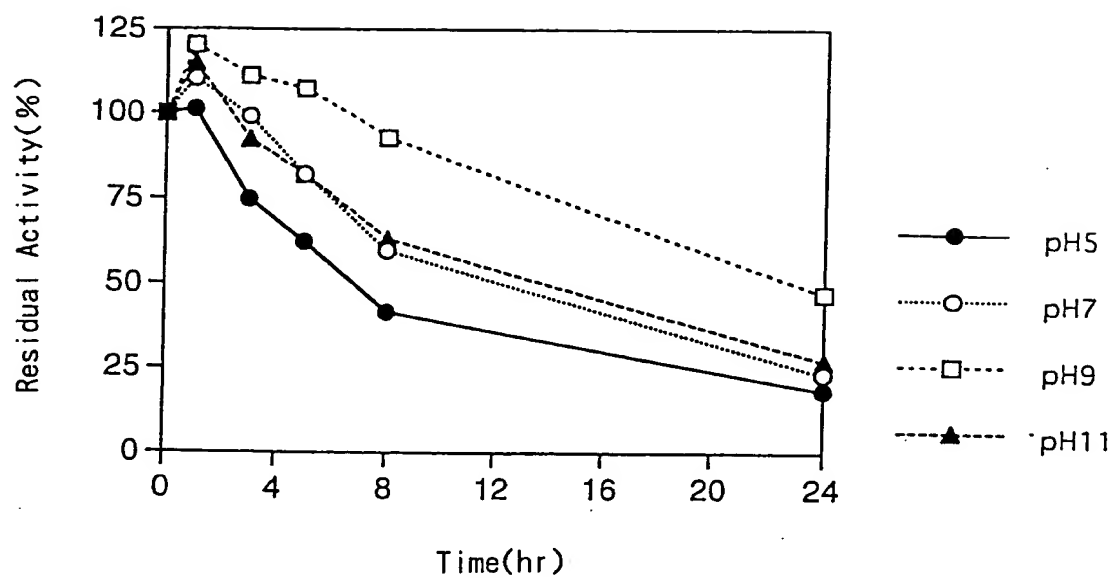


Fig. 26

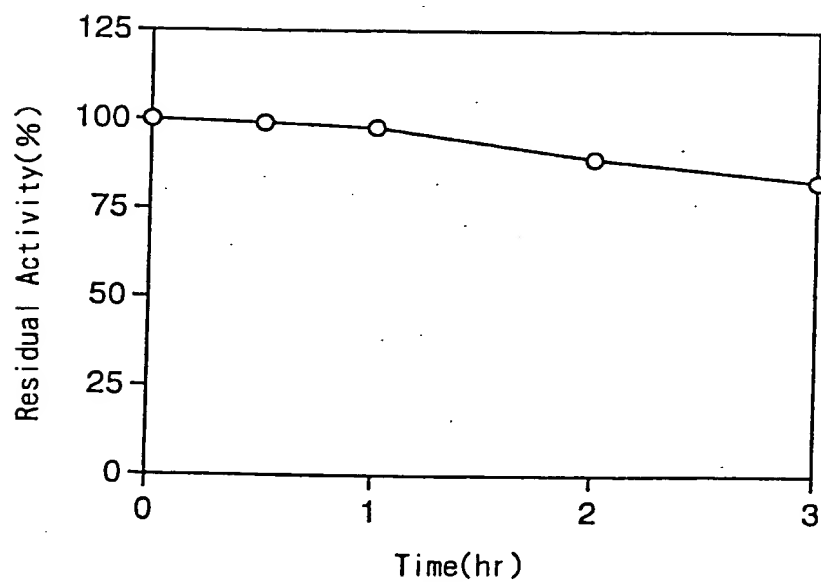


Fig. 27

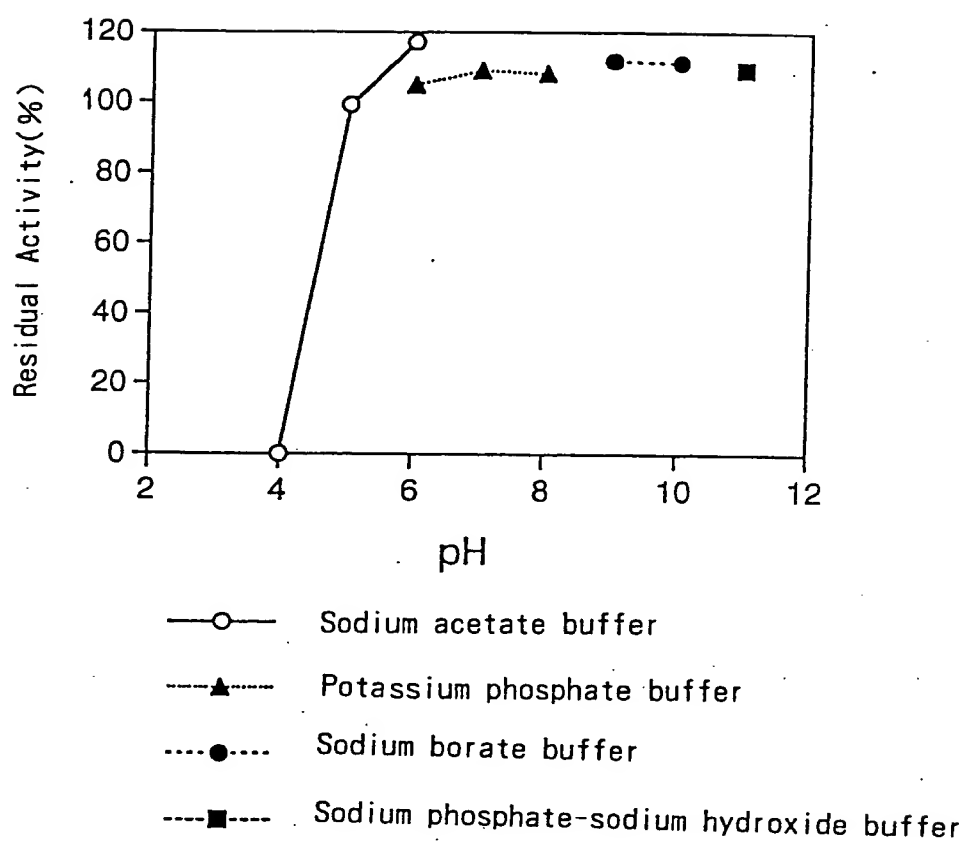


Fig. 28

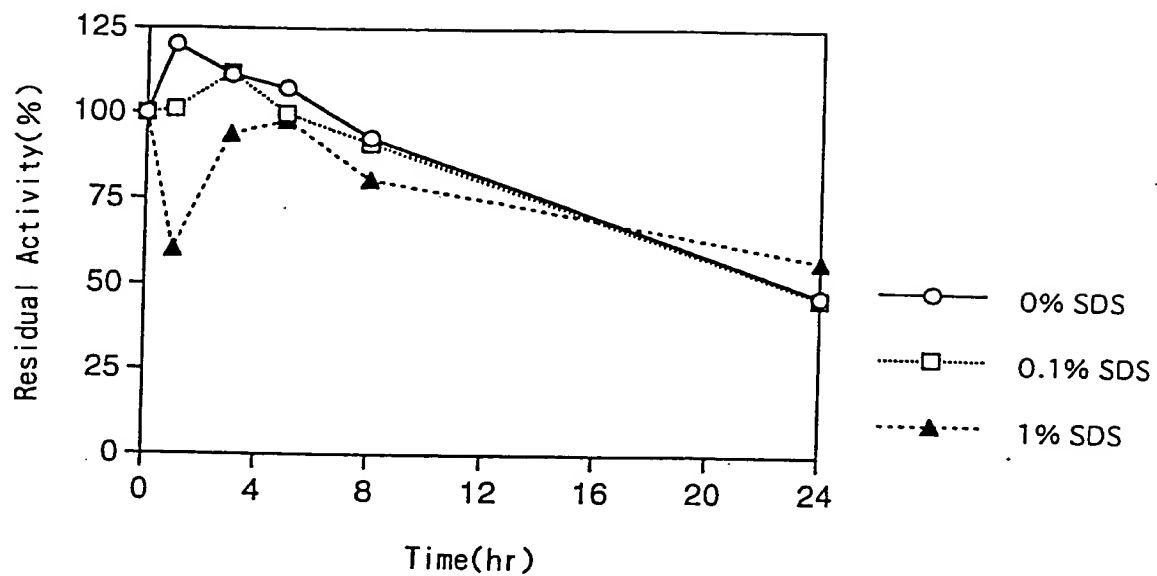


Fig. 29

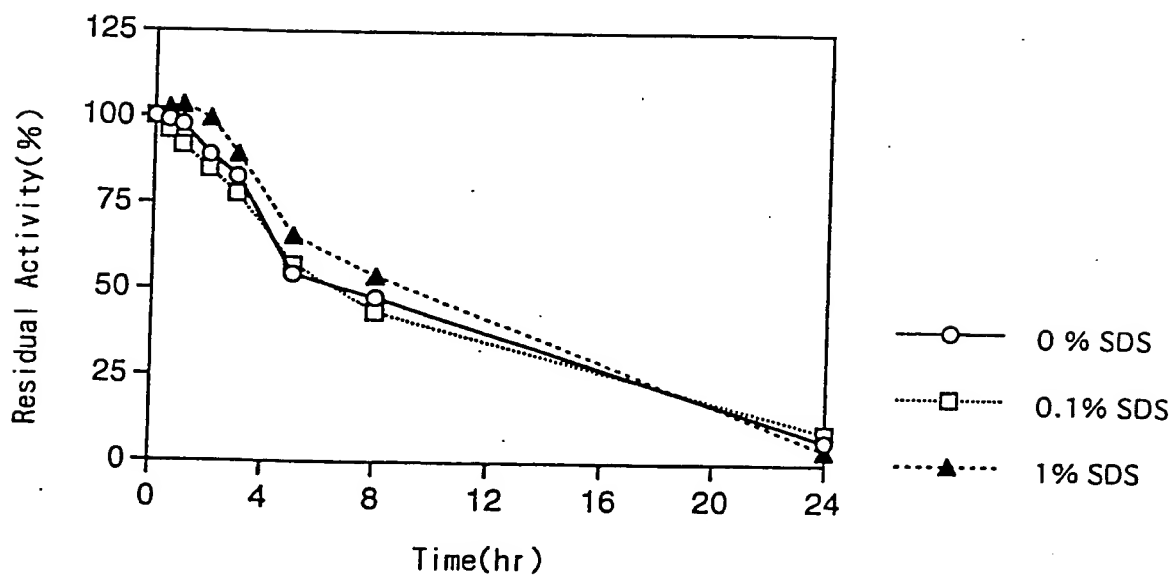


Fig. 30

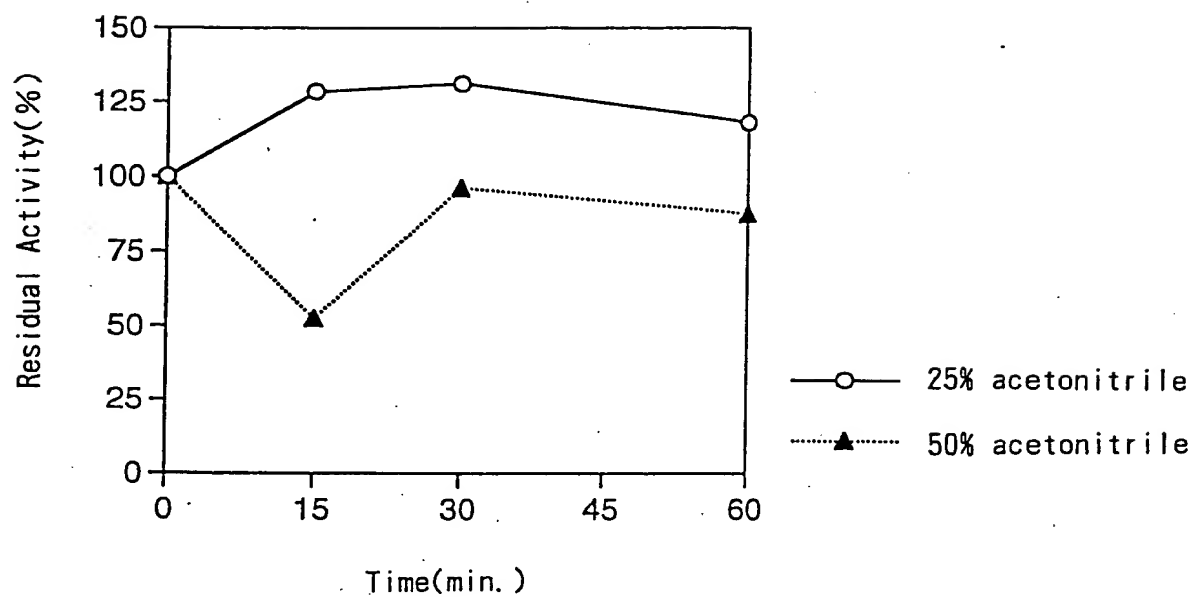


Fig. 31

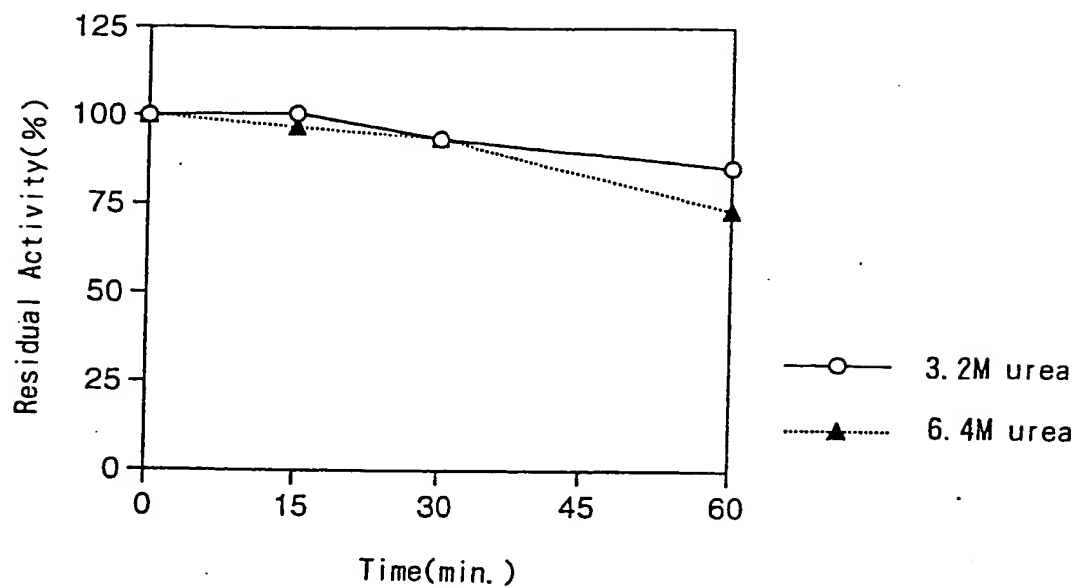


Fig. 32

